

SHORT COMMUNICATIONS

EGGS OF CAPTIVE CRESTED EAGLES (*Morphnus guianensis*)

LLOYD F. KIFF, MICHAEL P. WALLACE AND NATHAN B. GALE

Little is known of the breeding habits of larger Neotropical eagles, including the widespread Crested Eagle (*Morphnus guianensis*), and we are unaware of any published descriptions of the nest and eggs of the species. Bierregard's (*Wilson Bull.* 96(1):1–5, 1984) report of a nest in Manaus, Brazil is apparently the only published nesting account for this species. Kreuger (*Oologists' Rec.* 43:5–6, 1963) described a purported Crested Eagle egg from his collection, but we have doubts about the authenticity of the specimen. Therefore, we include herein descriptions of eggs laid by 2 Crested Eagles in captivity.

Three eggs (West. Found. Vert. Zool. Nos. 156,586–8) laid on 18 January, 27 January, and 25 February 1988, respectively, by a Crested Eagle housed at the Los Angeles Zoo are dull white in color, unmarked (aside from heavy dark brown nest stains), short subelliptical in shape (Preston *In* Palmer, *Handbook of North American birds*, vol. 1, Yale Univ. Press, New Haven, Connecticut, 1962) and measure 57.5 × 43.9, 55.5 × 42.7, and 51.8 × 41.2 mm, respectively. Corresponding empty shell weight (g) and shell thickness (measured at middle latitudes of the eggs;

given in parentheses in mm) are 7.215 (0.598), 6.738 (0.556), and 5.953 (0.552).

The female was obtained as a recent fledgling from local Indians in Depto Amazonas, northeastern Peru in early 1978 (J. P. O'Neill, pers. comm.). The female was housed from 28 March 1978–10 November 1987 at the Oklahoma City Zoo, where she laid a minimum of 25 eggs between August 1982 (at an age of 5 yrs)–February 1986 (T. Todd, in litt.). In 8 instances a second egg was laid from 3–10 days (\bar{x} = 7.4) after a first egg, suggesting that a clutch size of 2 eggs may be typical of this species. The nest studied by Bierregard (1984) also contained two eggs. Although the bird has been housed with a male throughout her captive life, all eggs laid have apparently been infertile.

A single egg (West. Found. Vert. Zool. No. 156,276) laid by another female at the Center for Propagation of Endangered Panamanian Species (CEPEPE), Balboa, Republic of Panama, is also dull white, unmarked, short subelliptical in shape, and measures 64.0 × 50.7 mm; empty shell weight is 7.614 g, and shell thickness at the larger end is 0.565 mm. That female was 5 yrs old when the egg was laid, and she has been producing eggs since she was 2 yrs old. She was obtained from the wild at the time of her apparent first flight near a nest site on Rio Chiquita Ridge, central Panama. The bird is presently housed with a younger male, but no fertile eggs have been produced.

Eggs of the Los Angeles female are markedly smaller than eggs from the Panamanian bird (Fig. 1). Weights of the 3 Los Angeles eggs taken within 2–3 d after laying were 60.3, 55.7, and 46.3 g, respectively (\bar{x} = 54.1 g). Based on the equation of Hoyt (*Auk* 96(1):73–77, 1979), fresh weights of the same eggs were 60.9, 55.7, and 48.4 g for an average of 55.0 g, representing only 1.9% of the Los Angeles female's body weight (2950 g). Doubtless, a 55.0 g egg is an atypically small weight for the species, and unusually small egg size has been noted in the eggs of other captive bird species, including raptors (T. Cade, pers. comm.; B. Walton, pers. comm.). The egg of the Panamanian bird had a calculated fresh weight of 90.5 g, or 3.1% of body weight (2950 g), which is presumably nearer to the expected egg weight, judging from other large eagles, including *Aquila* and *Haliaeetus* (Schonwetter, M. *Handbuch der Oologie*, vol. 1. Akademie Verlag, 1967) Color, texture, and shape of the eggs closely resemble those of the larger Harpy Eagle (*Harpia harpyja*). The egg reported by Kreuger (1963) measured 73.7 × 53.4 mm (calculated whole wt = 107.2) and was described as "deep cream with large pale yellow-brown spots, richly dispersed round the larger end of the egg, with finer small spots spread over the rest of the surface," thus differing mark-



Figure 1. Eggs laid by captive Crested Eagles. Panama (top); Los Angeles Zoo (bottom).

edly in both color and size from the captive-laid eggs described here.

ACKNOWLEDGMENTS

We thank Jon Fisher and Dana Gardner for various forms of assistance and Clark Sumida for preparing the Los Angeles eggs, measuring their thickness, and preparing Fig. 1. John O'Neill and Trey Todd provided details on the history of the female now at the Los Angeles Zoo. This note was supported by the Western Foundation of Vertebrate Zoology.

Western Foundation of Vertebrate Zoology, Suite 1400, 1100 Glendon Ave., Los Angeles, CA 90024. Address of second author: Los Angeles Zoo, 5333 Zoo Drive, Los Angeles, CA 90027. Address of third author: Center for Propagation of Endangered Panamanian Species (CEPEPE), PSC Box 973, Albrook, APO Miami, FL 34005.

Received 29 June 1988; accepted 15 May 1989

J. Raptor Res. 23(3):108–110
© 1989 The Raptor Research Foundation, Inc.

SERUM ESTRADIOL-17 β AND TESTOSTERONE LEVELS IN GREAT HORNED OWLS (*Bubo virginianus*)

SUSAN A. MAINKA, GEORGE J. HALMAZNA AND LORI M. ROGERS

Reproductive hormone levels of raptors have been studied in the American Kestrel (*Falco sparverius*) (Rehder et al., *Steroids* 43(4):371–383, 1984). This study was designed to provide information about estradiol-17 β and

testosterone levels in the Great Horned Owl (*Bubo virginianus*) and also to determine the effect of the presence of both male and female on the other sex during the breeding season.

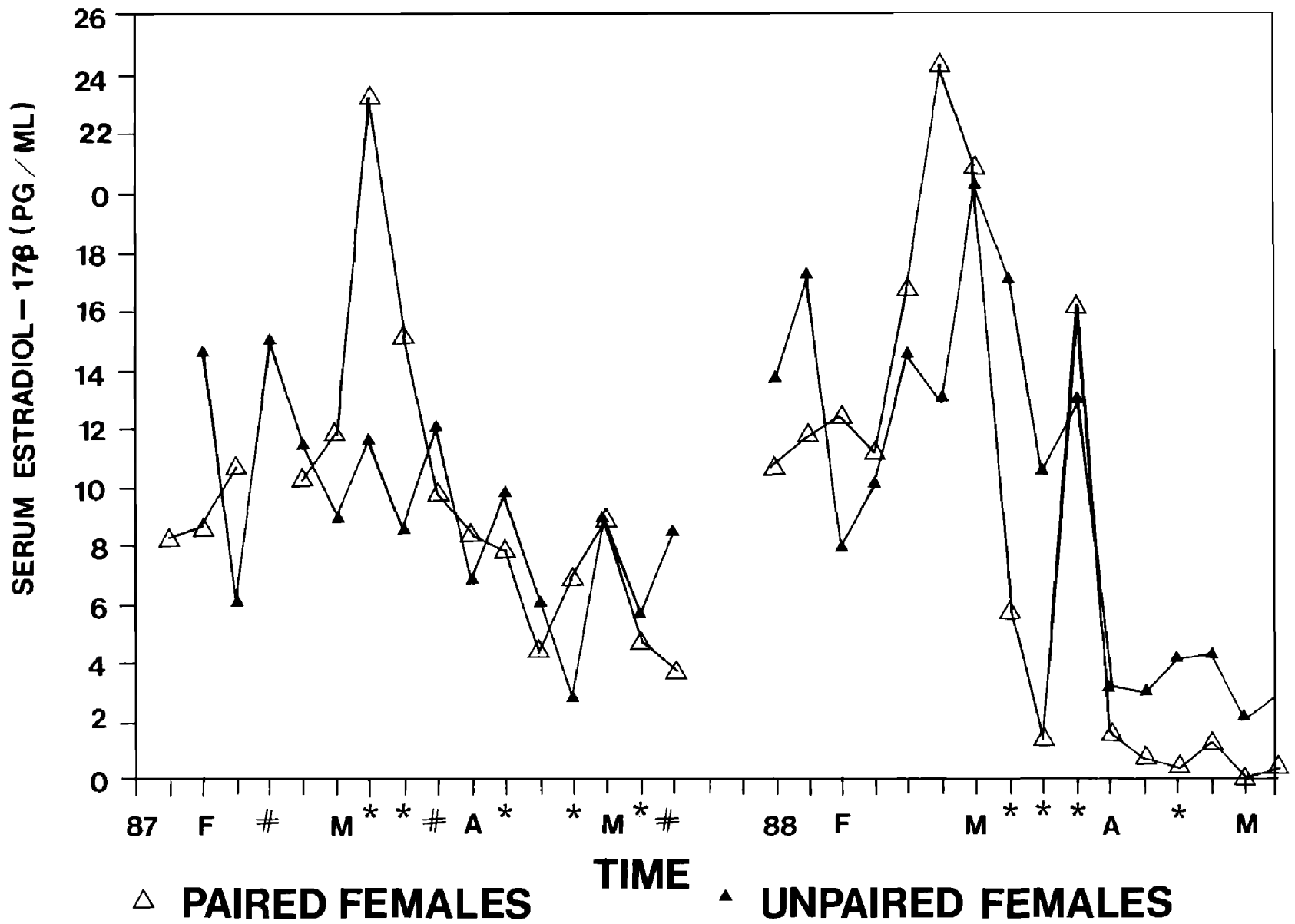


Figure 1. Serum estradiol-17 β levels measured in paired female Great Horned Owls (N = 2) and unpaired female Great Horned Owls (N = 3 in 1987, N = 5 in 1988). Values given are mean values for each sample date in pg/ml. (nb * N = 1 paired bird, # N = 1 unpaired bird)